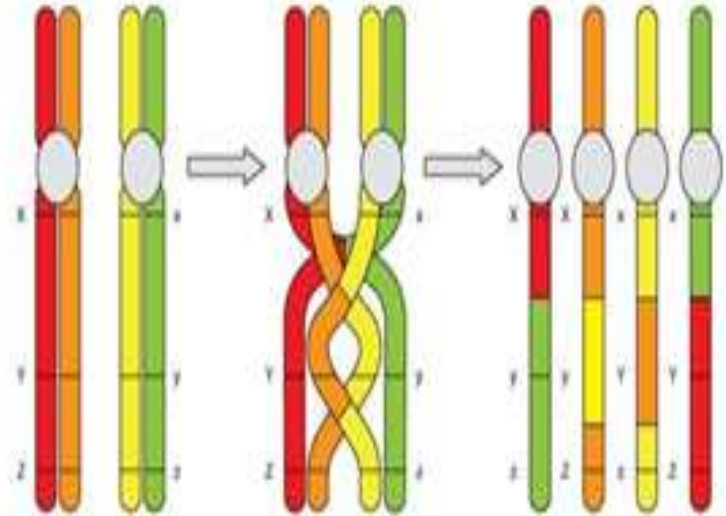


Significance of Meiosis:

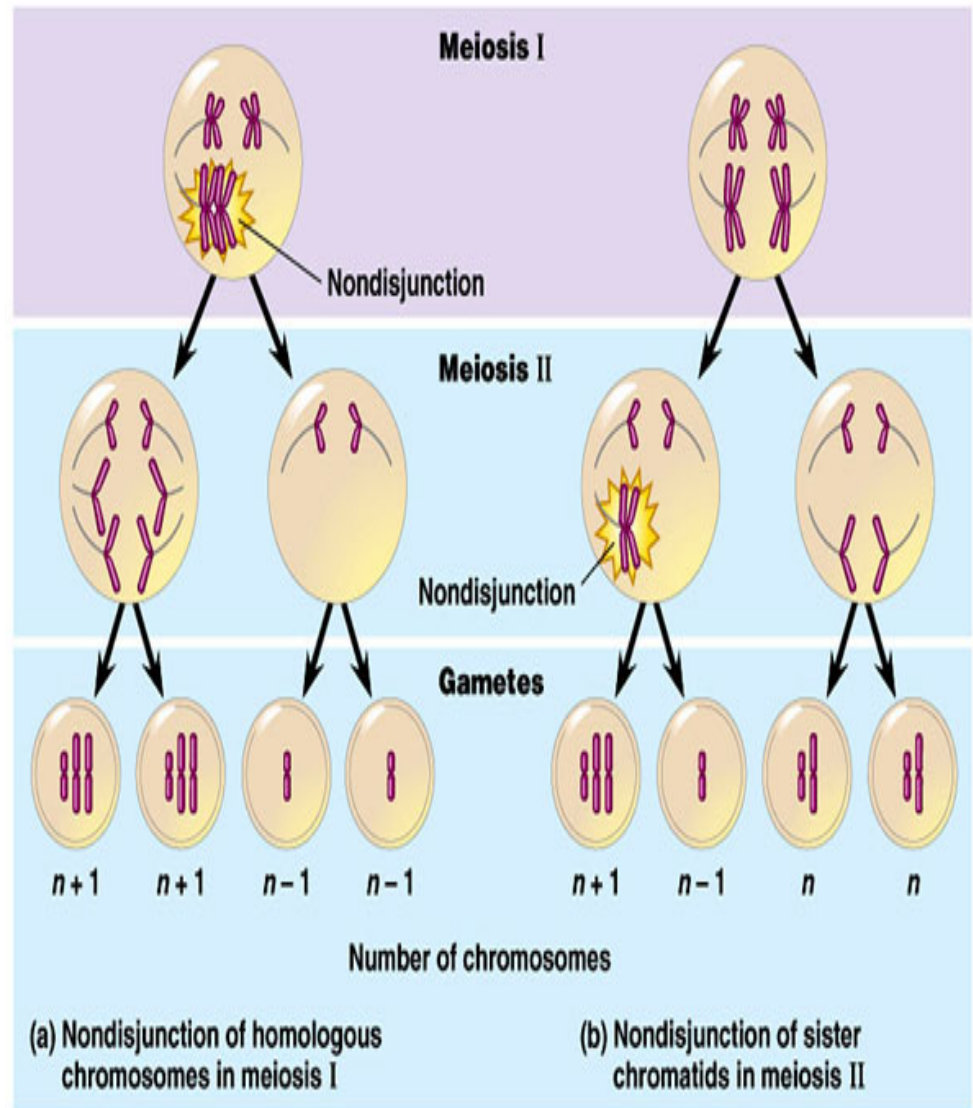
- v Genetic Variation caused by the possible combinations of chromosomes during “Crossing Over” in Meiosis 1.
- v Crossing over increases genetic diversity as the genes on the chromosomes combine in new ways.
- v An alteration in the DNA structure during meiosis causes mutations.
- v In most cases mutations are maladaptive and the new cell dies.
- v A small number of mutations are viable.
If the mutant gamete combines with another gamete to produce an offspring ---- the mutation can be passed to the next generation.



GENETIC DISORDERS AND MUTATIONS:

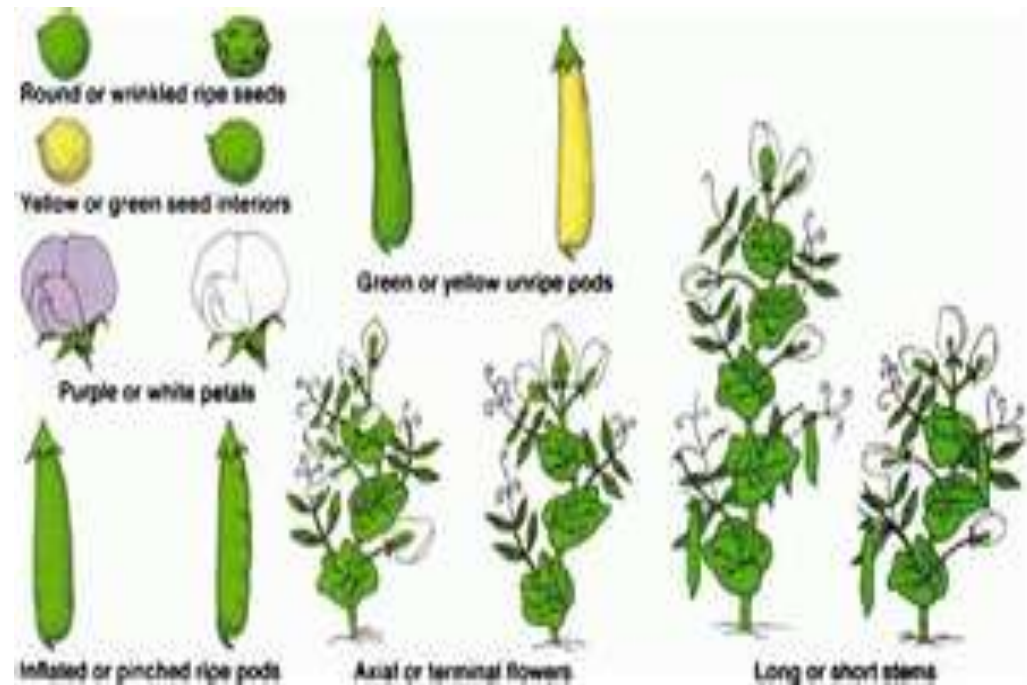
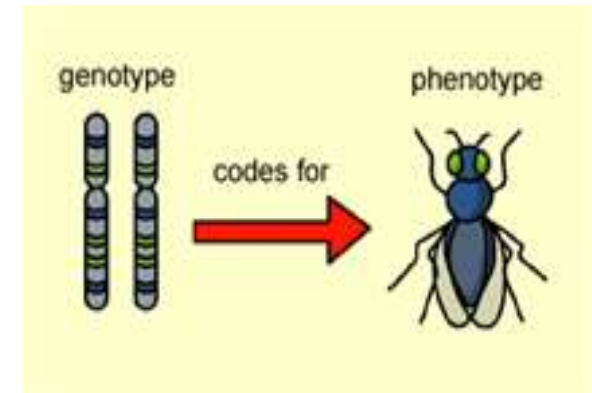
- ✓ Sometimes the chromosomes after crossing over separate and move to one pole instead of opposite poles.
- ✓ When the chromosomes do not separate it is called as: “**non disjunction**”.
- ✓ The gametes with extra chromosome fertilize, the zygote has three chromosomes instead of the normal 2.

This is called “Trisomy of chromosome 21”



Traits and Phenotype of animals

- V Traits are distinguished characteristics that are inherited.
- v Traits are inherited in discrete units called genes located on the chromosomes.



Trisomy 21 ----- Down Syndrome

v The most common chromosomal disorder with incidence

of 1:700 live births in U.S.

v High correlation between maternal age and meiotic non-

disjunction” leading to Trisomy 21.

v Other abnormalities related to Trisomy 21 are:

- § Congenial heart disease
- § Dimorphic features
- § Mental retardation
- § Predisposition to Leukemia
- § Abnormal Immune response
- § Auto immunity

